

(2) as the chip synchronization is established, using the chip synchronization for establishing the frame synchronization;

(3) determining maintenance of the established frame synchronization; and

(4) restoring the frame synchronization by using pilot bit patterns, when the frame synchronization is failed, wherein a pilot sequence used for the frame synchronization confirmation and establishment is a pilot sequence which provides maximum correlation results of opposite polarities at a starting point or middle point of a correlation period for each received frame.

4. (Amended) A method for confirming frame synchronization, comprising [the steps of]:

establishing the frame synchronization in an uplink or downlink channel; and, confirming a sustenance of the established frame synchronization by using a preset pilot sequence,

wherein the pilot sequence used in the confirmation of sustenance of the established frame synchronization provides maximum correlation results of opposite polarities at a starting point and a middle point of a frame correlation period.

6. (Amended) A method for confirming a frame synchronization, comprising
[the steps of]:


(1) a network side or a user equipment side establishing the frame synchronization by using timing information from an opposite side;


(2) confirming the established frame synchronization by using a pilot symbol pattern which provides a correlation value of "0" at points of a correlation period for each received frame except a starting point and a middle point thereof; and,

(3) if it is determined in the step (2) that the frame synchronization is failed, carrying out the step (1) again.

Clean Set of Amended Claims

1. (Amended) A method for confirming and establishing frame synchronization for sustaining the frame synchronization for a communication channel between a user and a network, the method comprising:

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- (1) establishing a chip synchronization for the communication channel;
 - (2) as the chip synchronization is established, using the chip synchronization for establishing the frame synchronization;
 - (3) determining maintenance of the established frame synchronization; and
 - (4) restoring the frame synchronization by using pilot bit patterns, when the frame synchronization is failed, wherein a pilot sequence used for the frame synchronization confirmation and establishment is a pilot sequence which provides maximum correlation results of opposite polarities at a starting point or middle point of a correlation period for each received frame.



4. (Amended) A method for confirming frame synchronization, comprising:
establishing the frame synchronization in an uplink or downlink channel; and,
confirming a sustenance of the established frame synchronization by using a preset pilot sequence,
wherein the pilot sequence used in the confirmation of sustenance of the

22 established frame synchronization provides maximum correlation results of opposite polarities at a starting point and a middle point of a frame correlation period.

6. (Amended) A method for confirming a frame synchronization, comprising:

(1) a network side or a user equipment side establishing the frame synchronization by using timing information from an opposite side;

(2) confirming the established frame synchronization by using a pilot symbol pattern which provides a correlation value of "0" at points of a correlation period for each received frame except a starting point and a middle point thereof; and,

(3) if it is determined in the step (2) that the frame synchronization is failed, carrying out the step (1) again.

C. Please add new claims 7-12 as follows:

7. (New) A method for at least one of establishing and confirming frame synchronization, and for sustaining the frame synchronization for a communication channel between a user and a network, the method comprising:

establishing the frame synchronization in an uplink or downlink channel by using chip synchronization for the communication channel; and

confirming a sustenance of the established frame synchronization by using a preset pilot sequences,

wherein the pilot sequences used in the confirmation of sustenance of the established frame synchronization include

a first code sequence having a significant autocorrelation value at a matched point of a correlation period and having an insignificant autocorrelation value at the other points excluding the matched point, and a second code sequence having the same autocorrelation characteristic as the first selected code sequence, wherein the first and second code sequences have a significant cross-correlation values having polarity opposite to said significant autocorrelation value at a specific delay point.

8. (New) The method of claim 7, wherein the second sequence is made by shifting the first code sequence by a certain bit length and by inverting the shifted first code sequence.

9. (New) A method for at least one of establishing and confirming a frame synchronization, and for sustaining the frame synchronization for a communication channel between a user and a network, the method comprising:

(1) a network side or a user equipment side establishing the frame synchronization by using timing information from an opposite side;

(2) confirming the established frame synchronization by using a pilot symbol pattern which comprises a first code sequence having a significant autocorrelation value at a matched point of a correlation period and having an insignificant autocorrelation value at other points excluding the matched point, and a second code sequence having the same autocorrelation characteristic as the first selected code sequence, wherein the first and second code sequences have a significant cross-correlation values having polarity opposite to said significant autocorrelation value at a specific delay point; and

(3) if it is determined in sept (2) that the frame synchronization is failed, carrying out step (1) again.

10. (New) The method of claim 9, wherein the second sequence is made by shifting the first code sequence by a certain bit length and by inverting the shifted first code sequence.

11. (New) A method for at least one of establishing and confirming frame synchronization, and for sustaining the frame synchronization for a communication channel between a user and a network, the method comprising:


establishing the frame synchronization in an uplink or downlink channel by using chip synchronization for the communication channel; and

confirming a sustenance of the established frame synchronization by using present pilot sequences,

wherein the pilot sequences have maximum autocorrelation values corresponding to their length at a matched point of the correlation period and have minimum autocorrelation value having polarity opposite to said maximum autocorrelation value near the half length delay point and have insignificant autocorrelation values at the other points excluding the matched and near the half length delay points.

12. (New) A method for at least one of establishing and confirming a frame synchronization and for sustaining the frame synchronization for a communication channel between a user and a network, the method comprising:

(1) a network side or a user equipment side establishing the frame synchronization by using timing information from an opposite side;

 (2) confirming the established frame synchronization by using a pilot symbol pattern which comprises code sequences having maximum autocorrelation values corresponding to their length at a matched point of the correlation period and having minimum autocorrelation value having polarity opposite to said maximum autocorrelation value near the half length delay point and having insignificant autocorrelation values at the other points excluding the matched and the half length delay points; and

(3) if it is determined in step (2) that the frame synchronization is failed, carrying out step (1) again.
